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THE EFFECT OF REPEATED PRAISE OR BLAME ON THE WORK ACHIEVEMENT OF 'INTROVERTS' AND 'EXTROVERTS'

GEORGE G. THOMPSON* AND CLARENCE W. HUNNICUTT
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An investigation by Forlano and Axelrod[1] has indicated that repeated applications of praise or blame have differential effects on the work performance of 'introverts' and 'extroverts.' In the investigation conducted by them, praise or blame was repeated only two times. The present study was conducted to determine the effects of more extended applications of praise or blame on the work achievement of 'introverts' and 'extroverts.' The methods employed, however, are quite similar to those used by Forlano and Axelrod.

If praise or blame has differential effects on children with different personality characteristics, teachers should be cognizant of the fact. It seems altogether possible that indiscriminate praise may be as detrimental to a pupil's school achievement and personality development as indiscriminate blame. It also seems possible that the skillful teacher could at times employ blame, as well as praise, to foster the child's general adjustment.

METHOD

Subjects.—Fifth-grade pupils from five classes in the Syracuse Public Schools[2] were selected as subjects for this study. One

* On leave of absence.

[1] Forlano, George, and Axelrod, H. C.: "The effect of repeated praise or blame on the performance of introverts and extroverts." *J. Educ. Psychol.*, 1937, 28, 92–100.

[2] The experimenters wish to express thanks to Mr. C. Spencer Chambers, Principal of Lincoln School, and to Mr. Horace Roberts, Principal of Seymour School in Syracuse, New York, and to the teachers of these schools for their enthusiastic coöperation.

class of twenty-seven pupils was used for the control group. The remaining four classes (comprising ninety-seven pupils) were subdivided into the various experimental groups in the manner described below.

Several days before the experiment proper was conducted the Introversion-Extroversion section of a Personality Test by Pintner and Others was administered to all of the one hundred twenty-four subjects employed in this study. On the basis of total scores obtained on this thirty-five-item test the children in each class were divided into two groups. Pupils with scores above the median were considered 'extroverts,' while those pupils with scores below the median were considered 'introverts.'

In the first class of fifth-grade pupils the 'extroverts' were praised after each task, and the 'introverts' were blamed. In the second class of pupils this procedure was reversed and the 'extroverts' were blamed while the 'introverts' were praised. By alternating this procedure in the remaining two classes it was possible to obtain approximately the same number of pupils in each of the four experimental combinations.

Introversion-Extroversion Scores.—The forty-seven subjects who were praised after each task (including both 'introverts' and 'extroverts') obtained a mean score on the Introversion-Extroversion test of 21.2. The fifty subjects who were blamed after each task (including both 'introverts' and 'extroverts') obtained a mean score of 21.9. The Control Group of twenty-seven pupils obtained a mean score of 21.5. A statistical analysis of the introversion-extroversion scores obtained by these three groups resulted in an F of 0.317, which is not significant at any acceptable level of confidence. Hence, these three groups may be accepted as unbiased samples from the same population with respect to introversion-extroversion.

The mean introversion-extroversion scores obtained by the pupils in each of the four experimental combinations are shown in Table I.

The results of a statistical analysis of the mean introversion-extroversion scores obtained by the subjects of the four experimental combinations are presented in Table II. It may be concluded from these results that the Extrovert-Praised and the Extrovert-Blamed groups are not significantly different in mean introversion-extroversion scores; and that the mean introversion-

extroversion scores obtained by the Introvert-Praised and the Introvert-Blamed groups are also not significantly different. All of the other combinations within the four experimental groups are significantly different with respect to mean introversion-extroversion scores. The results of this analysis satisfy the requisite conditions for this experiment: (1) that the two extrovert groups be unbiased samples from a population of 'extroverts,' and (2) that the two introvert groups be unbiased samples from a population of 'introverts.'*

TABLE I

Experimental Groups	Number of Subjects	Mean Score on Introversion-Extroversion Test
Extroverts—Praised	23	24.4
Extroverts—Blamed	28	23.8
Introverts—Praised	24	18.2
Introverts—Blamed	22	19.5

TABLE II

Experimental Groups	t	Level of Confidence
E-P and E-B	0.47	—
I-P and I-B	0.46	—
E-P and I-P	7.95	1%
E-P and I-P	3.23	1%
E-B and I-P	4.20	1%
E-B and I-B	3.17	1%

Tasks and Procedure.—Six alternate forms of a cancellation test were constructed in order to measure each pupil's work achievement under the various experimental conditions. The different forms of this test were made sufficiently long so that no

* The Control Group was not included in the comparisons because of its obvious overlap in introversion-extroversion scores with the two extrovert and the two introvert groups. A control group is not necessary to test the differential effect of praise or blame on 'introverts' and 'extroverts,' if the pupils in different experimental combinations do not differ significantly in their performance on the first assigned task. It will be shown later in this report that the subjects in the four experimental groups obtained essentially the same scores not only on the first task, but also on the second task (after the first differential incentives had been given).

subject would be able to complete the task during any testing session. Each of these cancellation tests consisted of Arabic numerals from zero to nine presented in random sequences within each row. The pupils were instructed to draw a line through each of the 7's on the test sheet. Previous research has indicated that a cancellation test of this type has a low correlation with either intelligence or chronological age and has a substantially high reliability coefficient. In the present experiment employing one hundred twenty-four pupils a positive correlation of 0.87 was obtained between the combined scores of the three odd-tests and the combined scores of the three even-tests.

Before copies of the first test were distributed to any group of subjects an example of several numerals was placed on the blackboard and the experimenter demonstrated the manner in which a line was to be drawn through each of the 7's. The usual precautions were taken to insure each subject's readiness to start work on the 'begin' signal and to cease work immediately after the 'stop' signal.

The duration of each test period for both the control and the experimental groups was thirty seconds. A work period of such short duration seemed advisable because of the intrinsic dullness of the task. In thirty seconds it seemed unlikely that the subjects would become satiated with the task or that they would reach in six test periods a level of performance that would preclude any further improvement in work output. Analysis of the results has shown that test periods of thirty-seconds duration provide reliable scores; however there is some indication in the data that the experimental groups showing the greatest improvement in work achievement may have reached a level of performance that tended to make further improvement increasingly difficult.

In the control group no comments were made between any of the testing sessions. After the sixth and last task had been completed, the experimenter announced that all of the pupils had done satisfactory work.

In order to provide individual incentives to the subjects in the experimental groups the teacher passed around the room after each testing period, studied each pupil's paper for a few seconds, and placed a 'P' or a 'G' on it. The pupils were asked to keep their marks secret. The teacher had been previously instructed

as to which subjects were to receive marks of 'P' (poor) and which subjects were to receive marks of 'G' (good). After marking the first set of test papers, the teacher wrote a large 'P' and a large 'G' on the blackboard, and informed the pupils that those who had received 'P's' had done very poorly and those who had received 'G's' had done exceedingly well. After marking the papers for each of the subsequent tests the teacher reminded the subjects that 'P' stood for poor work and 'G' for good work.

It is assumed in this study that a mark of 'G' represented to the subjects a form of teacher praise; and that a mark of 'P' represented a form of teacher blame. The fact that the pupils had no assurance that their 'good' or 'poor' marks would not be made known to the entire class may also have been functioning as a form of motivation. The experimenters observed that some of the children who were blamed after each test became increasingly disturbed when they failed to obtain a 'G' on their test papers. It was observed that some of the 'blamed' pupils increased their efforts after receiving a poor mark, while other pupils who were blamed became distracted or sullen when the next test was given. One pupil who was continuously blamed became so resentful that he refused to try on the last test; his teacher reported that this was his typical reaction when he was reprimanded for poor school work.

At the end of the final test all children were marked 'G.' This could have no experimental effect and might leave the children with a pleasanter emotion. Most of the students who had been receiving 'P' now showed marked signs of elation, indicating that the motivation had been functioning. This was particularly true of those 'blamed' students who were normally accustomed to receiving good grades.

The 'unfairness' of the experimental situation could not have been unusually disturbing. It was of short duration. More important, the customary pattern of assigning marks in school continues over a period of years to 'blame' individuals for inadequacies beyond their control.

RESULTS

Comparison of Blamed, Praised, and Control Groups.—To compare the work achievement of the Blamed (both introverts and extroverts), the Praised (both introverts and extroverts),

and the Control Groups, the cancellation scores obtained by each subject on the first test were subtracted from the scores obtained on each of the succeeding five tests. This procedure was followed because the Control Group obtained somewhat higher scores on the first test than did the Blamed or the Praised Groups. The derived data are shown in Table III. It should be recalled that no extrinsic incentives were applied before the first test.

TABLE III

Experimental Groups	Mean Gains in Cancellation Scores				
	Test 2	Test 3	Test 4	Test 5	Test 6
Total Blamed Group.....	18.1	16.3	17.9	20.3	21.1
Total Praised Group.....	18.3	16.2	16.6	19.6	19.9
Control Group.....	11.6	11.4	11.2	12.5	14.9

An analysis of variance was made of the gains shown by these three groups on tests 2, 3, 4, 5 and 6. F was found to be significant at the one-percent level of confidence for each of the five gains. Since F was found to be significant for each of the five gains, it was permissible to compare the mean gains of the three groups for each of the last five tests. The results of this analysis are presented in Table IV.

The values presented in Table IV show that there are no significant differences between any of the mean gains obtained by the Blamed and the Praised Groups on the last five tests. These values further show that all five of the mean gains obtained by the Control Group are significantly smaller than those obtained by either the Praised or the Blamed Group.

It may be concluded: (1) that either praise or blame was more effective than no external incentive in increasing the work output of these fifth-grade pupils: and (2) that praise and blame were equally effective in motivating fifth-grade pupils when 'introverts' and 'extroverts' were not differentiated.

However, it should be pointed out that the increased work output shown by the Praised and the Blamed Groups is almost

entirely the result of the first incentive applied. The succeeding applications of praise or blame did not materially alter the pupils' mean scores, although the initial superiority attained by the Praised and the Blamed Groups after the application of the first incentives was maintained consistently during the later tests.

TABLE IV

Experimental Groups	*t*'s for Differences Between Mean Gains*				
	Test 2	Test 3	Test 4	Test 5	Test 6
Total Praised Group vs. Total Blamed Group....	0.23	0.10	1.07	0.50	0.69
Total Praised Group vs. Control Group.....	6.45	4.14	3.72	4.55	2.86
Total Blamed Group vs. Control Group.....	6.30	4.26	4.68	5.06	3.62

* *t*'s with the number of degrees of freedom available for these comparisons must be 2.75 or greater to be significant at the one per cent level of confidence and at least 2.42 to be significant at the five-per cent level of confidence.

Comparison of E-B, E-P, I-B, and I-P Groups.—The mean cancellation scores obtained on each of the six tests by the Extrovert-Blamed, the Extrovert-Praised, the Introvert-Blamed, and the Introvert-Praised Groups are presented graphically in Fig. 1.

An analysis of variance of the cancellation scores obtained by these four experimental groups on each of the six tests show that F was not significant for tests 1, 2 and 3; but was significant at the one per cent level of confidence for tests 4, 5 and 6. It may be concluded that there were no significant differences in work output between any of the four experimental groups on tests 1, 2 and 3, although the differences on test 3 showed a consistent trend toward the significant differences found for tests 4, 5 and 6. The results of this analysis permit a comparison of the mean cancellation scores obtained by these four experimental groups on

tests 4, 5 and 6. The *t*'s for differences between mean scores are presented in Table V.

These comparisons of mean scores substantiate what one could reasonably predict by examining Figure 1.

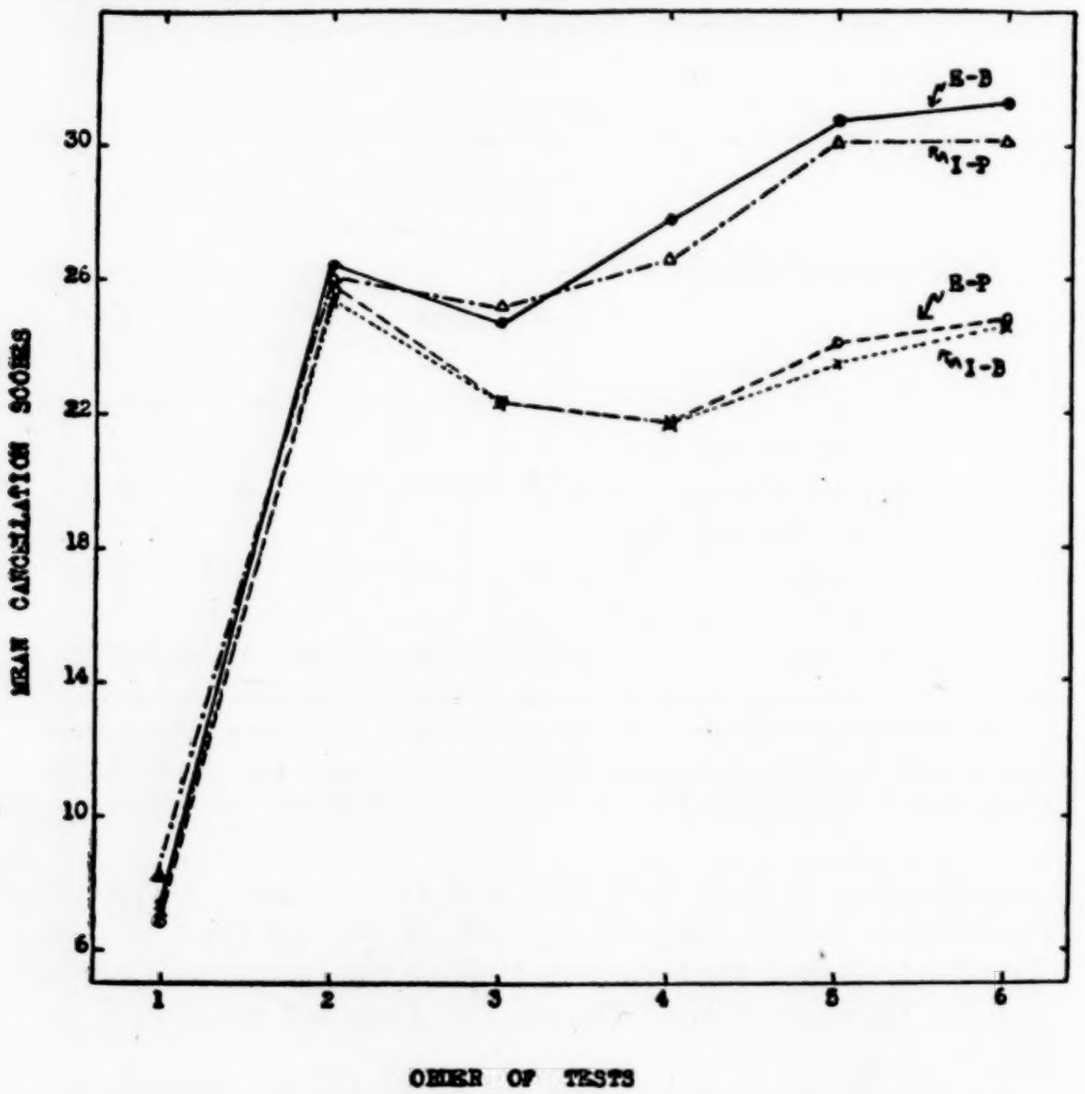

FIG. 1.

1) On tests 4, 5 and 6 the extroverts who were blamed (E-B) obtained significantly higher cancellation scores than either the E-P or the I-B Groups.

2) On tests 4, 5 and 6 the introverts who were praised (I-P) obtained significantly higher cancellation scores than either the E-P or the I-B Groups.

3) On tests 4, 5 and 6, as well as on tests 1, 2 and 3, the E-P and the I-B Groups did not differ significantly in mean scores. There were also no significant differences between the mean

cancellation scores obtained by the E-B and the I-P Groups on any of the six tests.

TABLE V

	t's for Differences Between Mean Scores								
	Test 4			Test 5			Test 6		
	Diff.	*t*	Level of Confidence	Diff.	*t*	Level of Confidence	Diff.	*t*	Level of Confidence
E-B minus E-P.....	5.9	2.80	1%	6.3	3.01	1%	6.4	2.83	1%
E-B minus I-B.....	5.9	2.76	1%	7.1	3.31	1%	6.6	2.87	1%
I-P minus E-P.....	4.8	2.21	5%	5.8	2.71	1%	5.4	2.32	5%
I-P minus I-B.....	4.8	2.18	5%	6.6	3.05	1%	5.6	2.35	5%
E-P minus I-B.....	0.0	——	—	0.8	0.37	—	0.2	0.01	—
E-B minus I-P.....	1.1	0.53	—	0.5	0.25	—	1.0	0.45	—

In more general terms, it may be concluded from these results that applications of praise or blame, when repeated often enough in the form of school marks, have differential effects on the cancellation scores of introverted and extroverted fifth-grade pupils. Introverts achieve a higher level of performance when praised, and extroverts respond most favorably when blamed. The increasing divergence of the curves (Fig. 1) further indicates that there is a cumulative effect of repeated praise or blame on 'introverts' and 'extroverts.'

SUMMARY AND CONCLUSIONS

The purpose of the present study was to determine the effects of repeated applications of praise or blame on introverted and extroverted fifth-grade pupils. One hundred and twenty-four fifth-grade pupils were selected as subjects. The Introversion-Extroversion section of a Personality Test by Pintner and Others was used to classify the pupils into two groups with regard to introversion-extroversion. Cancellation tests were employed to measure the effects of repeated praise or blame on the experimental groups. Praise or blame was administered by the teacher's placing a mark of 'G' (good) or 'P' (poor) on the

subject's test paper. A control group was employed to test the effects of repeated applications of praise or blame on an unclassified population of fifth-grade pupils (introverts and extroverts grouped together).

The analysis of the data collected indicate that:

1) When introverts and extroverts are grouped together, praise and blame are equally effective in motivating the work achievement of fifth-grade pupils. Either praise or blame is more effective in increasing the work output of fifth-grade pupils than no external incentives.

2) If repeated often enough praise increases the work output of introverts until it is significantly higher than that of introverts who are blamed or extroverts who are praised.

3) If repeated often enough blame increases the work output of extroverts until it is significantly higher than that of extroverts who are praised or introverts who are blamed.

The results of this study indicate that praise, as well as blame, can be used unwisely by the elementary-school teacher if he does not fully appreciate and understand the different personalities present in his classroom. Praise and blame should not be judged on an either-or basis, but should be used to fit the case.

AN ANALYSIS OF THEMES ON THE SUBJECT OF WAR AS WRITTEN BY AMISH AND NON-AMISH CHILDREN

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In a previous article[1] the writer has reported a study in which attitudes toward war of Amish and non-Amish children were compared. Members of the Amish religious sect are by faith conscientious objectors to war. Themes on the subject, "How the war affects me," written by one hundred thirty-four Amish children were judged to be more unfavorable toward war than themes written by one hundred sixty non-Amish children of the same general socio-economic level. In the present report some analysis is made of these themes. The themes were written in the fall of 1943.

The subject of the theme permitted a wide and free range in writing and many ideas were expressed by the children. The writer has read each theme carefully and has classified statements made on the themes under six headings: (1) Rationing and shortage of available merchandise, (2) Desire to help in winning the war, (3) Sadness resulting from the war situation, (4) Fear for personal safety and well-being or for the safety of loved ones, (5) Hatred for the enemy, (6) Desire for peace. Calculations have been made of the percentages of Amish children and the percentages of non-Amish children making statements at least once in their themes which could be classified under each of these six headings. Some quotations classified under each of these six headings will be given. Also, a few other quotations of special interest to the psychologist will be indicated.

Rationing and the shortage of available merchandise.—The outstanding feature of the themes was the mentioning of rationing and the discomforts created by it and by the general shortage of available merchandise. One hundred twenty-nine Amish children (96.3 per cent) and one hundred forty-six non-Amish children (91.3 per cent) mentioned this point at least once in their themes.

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[1] Engle, T. L., "Attitudes Toward War As Expressed By Amish and Non-Amish Children," *J. educ. Psychol.*, April, 1944, pp. 211–219.

The difference in these percentages is not statistically significant. Many of the themes were composed entirely of statements indicating merchandise which cannot be obtained or which can be obtained only through rationing coupons or with difficulty. Candy, gum, gasoline, and shoes were mentioned very frequently. Some of the children stated that inasmuch as they lived on farms they were not affected so much by food rationing as people living in the cities but that it was bad enough for them.

There were rationalizations and expressions of resentment, as well as simple statements of facts. A few typical statements concerning rationing are quoted below. A girl said, "I can't make ice cream, cakes, and other sweets, but I think it just as good for me if I don't have them, but I think it's very hard to do without them." A boy said, "I wonder how the ration board expects a farmer to do his job if he has holes in the bottom of his shoes and can't get new ones until October the 1st." From a girl there was the statement, "Since the war has begun we almost don't have enough shoes to last and lately I have been going without shoes at home so I will have shoes to wear at school." An Amish boy said, "I think the war has taught me that you can do without some things and with less of other things. It should teach some how to be thrifty, and get the most for your money when you buy something." A girl expressed her disapproval by saying, "It is hard to get 'pance' so what should we do, go without? I can't hardly get any hair pins to put up my hair so what should I do, shave my head?" Another girl said sarcastically, "But one thing they forgot to forbid is sleighs and bobsleds," and a boy concluded his theme with, "Yours till the ration board gets brains." A boy rationalized his privations by saying, "I used to eat too much candy and drink too much pop before the war, and now you can't get as much pop and candy so I don't get as many stomach 'akes.'" There was some expression of the opinion that people should not 'crab' about rationing, a typical statement being, "It sure does make one sick to hear people crab about not getting all the sugar and other rationed foods they want. People in other lands just live on crumbs while we have about all we want. We are not the only people in the world. Our nation has had all it wants. So it is good for us to do without some things." Another said, "When I go to the store to get something hard to get in war time and I can't get it, it makes me

a little mad, but when I think of the other people in the world that don't have anything to eat it makes me ashamed."

Desire to help in winning the war.—Statements indicating a desire to help in the war effort were found in eleven (8.2 per cent) of the themes written by Amish children and in sixty-seven (41.9 per cent) of the themes written by non-Amish children. The difference in percentages of 33.7 per cent has a significance ratio of 7.39. This is the only classification in the present report which shows a statistically significant difference. Here we seem to have a distinct reflection of the influence of early home and church religious instruction.

A boy said, "I enjoy helping to raise food that I know will help to win the war and bring us closer to victory." A girl stated, "I myself only wish even as I am a girl I could join some of the girls' part of the war," and another said, "When I think of war I remember how I would like to be a Marine in the South Pacific fighting Japs." Although expressed in poor English a boy indicated that he felt he was helping, "In selling scrap iron this here is obtaining to war efforts and it makes me feel to go out and shot the Japs." A girl expressed her willingness to help by saying, "It is hard to get hair ribbons but if it will help a boy parachuting from an airplane I'm satisfied." Most of the Amish children mentioned neither a desire to help nor to hinder the war effort, but one Amish boy did state, "The way I feel about stopping the war is to stop buying War Bonds, then it would have to stop some time." (As a rule Amish people do not buy War Bonds but they do buy other government bonds.)

Sadness resulting from the war situation.—Although the children spent considerable space in discussing the more superficial aspects of war, the writer was impressed with the seriousness with which many children spoke of the war. One girl said, "Some people say at the age of eleven, twelve, thirteen, fourteen we don't understand the war, but what I can say about that is that we understand it more than they think." After speaking of various relatives who were in the armed forces a boy said, "Some people think it doesn't affect me, but of everything put together, they don't know the half." From another boy there was the statement, "The war makes us feel more grown up because we take men's places more than we used to." Another said, "It don't seem like the same world that I was living in when I was small."

Statements suggestive of sadness were made by forty-four (32.8 per cent) of the Amish children and by sixty-seven (41.9 per cent) of the non-Amish children. It was clear that these children tended to think of war in terms of terror, death, and suffering rather than in terms of glory. A few typical quotations are given below.

A girl said, "It makes me feel sad when I think of all the soldiers and people being killed and hurt." Another said, "I think war is a terrible thing. Many boys get killed who dislike war as much as I." Another girl stated, "Just look how many boys are getting killed. If it wouldn't be for the war these boys that are getting killed might have lived to be old men. I think there shouldn't be any reason that these boys can't become old men and enjoy life just like Hitler or any other man." Another said, "It affects me in hearing how many men, women, and children are getting killed every day or starving or such things as that." A boy stated, "The news in the newspaper is nearly all about the war. Show pictures and telling stories about the war is about all that is told. Such things bring back sad thoughts of death caused by the war." Another said, "Another thing that affects me of war is that so many American boys get killed in practicing their rules in the United States."

Fear for personal safety and well-being or for the safety of loved ones.—In the statements quoted above there was expression of a general and often times impersonal feeling of sadness. In the present section attention will be given to statements indicating a more personal emotional reaction. Many children indicated that they had brothers, cousins, uncles, and other relatives in the armed forces. Some of these statements seemed to be an expression of pride. Others spoke of departed relatives in terms of the additional work made necessary by their departure. Only statements indicating fear for the safety of loved ones or for their own safety and well-being were considered in computing the following percentages. Twelve (9.0 per cent) of the Amish children and nine (5.6 per cent) of the non-Amish children expressed such fears.

A girl said, "When I hear of someone I knew who has been killed in action over there I sometimes worry about my brothers. But other times I think if they can take it I can too." Another said, "I am always afraid that the war will come close to the United States. I don't like to hear anything about the war."

A boy expressed his fear in these words, "And when you get to a certain age they will take you to the army and you can't come home when you want to. You get so home sick that you can't hardly stand it. When you come home you can only stay ten days. Then you have to go again and stay five or six months before you can come home again." One Amish boy projected his fear as indicated by the statement, "I hope that my sons won't join the army and get killed." A girl reported that one of her brothers had been reported missing in action and went on to say, "Since then our home hasn't been the same, every time the phone rings we are afraid to answer it. When a letter comes we are afraid to look at it, afraid that it might be bad news from any one of my brothers one of which is in the South Pacific, a fighting Marine, one is in the Navy Air corps."

Hatred for the enemy.—Many themes contained expressions indicating the need of 'licking' or fighting the enemy and of winning the war. However, very few contained expressions of personal hatred for the enemy. Five Amish children (3.7 per cent) and thirteen (8.1 per cent) non-Amish children did express hatred.

A boy said, "Hitler should be killed and whoever says anything about him that makes us think he is a friend of his should be hit in the face. The Japs are 'yeller' too. The Jap leader should be killed too." One boy expressed his hatred in these words, "This war also makes me mad because our boys have to go fight and I'm not old enough to join the Air Corps and give it to the Nazis and the dirty, crooked, yellow livered Japs." Another said, "I wish that I would have a shot at a Jap. I'll bet that he would not stand very long. I would kill him right off the bat." A girl said, "It makes me angry about Hitler. I wish that I could knock him down."

Desire for peace.—Ten Amish children (7.5 per cent) and twenty-three non-Amish children (14.4 per cent) specifically expressed a desire for the coming of peace. In a few cases one was led to suspect that the desire for peace was prompted by a dislike for rationing, but for the most part the expressions seemed to be more serious.

Some children made such simple statements as, "I wish it would be over," "I wish the war would stop and I hope that war will never come again," and "I hope we will try not to have another war." A boy stated, "I am hoping that after this war is

won the world will be a better place in which to live." A girl, evidently of superior ability, said, "Because I shall some day have a voice in the affairs of the world it is my duty to learn about the war now so that I can help to prevent the universe from ever again being thrown into such utter chaos and destruction. We, the citizens of tomorrow, are depended upon to avoid the mistakes made by the generation before us."

SOME OTHER REACTIONS

The themes contained many statements of interest to the psychologist other than those which have been placed in the above six classifications. A number of children expressed a desire to escape from the constant pressure of war, as is indicated in the following quotations: "Whenever you go to a meeting or to a program there is always a speaker on war. I know there's a war on and I know that we must win it but do people have to talk continuously about it?" "If I want to read the newspaper I just read the funnies because the other things are just about the war, and on the radio it's just the same." "All you hear is people talking about war. I kind of get tired of it."

Schoolroom difficulties seemed to have been rationalized by some of the children. "One way the war affects me is that all the good teachers have gone to the factories and we have to take what's left and that's not much because they sure can give lessons." "Since the war begain, I have to do more English. If our teacher would know how good I like English I don't think he would gave me any English to do" (There was no period at the end of the sentence.) "I can't see why all the good teachers go to work in the factories and all the bad ones are left—when she starts to give lessons she doesn't know when to quit and we have to just work for her, she gives us such hard lessons too." "I can't get enough erasers, so I dare not make so many mistakes in English any more."

In addition to statements indicating the sadness produced in the homes through the absence of older brothers and sisters in the armed forces and conscientious objectors camps, a number of children suggested other effects of the war on their homes. One boy said, "The war affects me because my father and mother have to work all the time. I don't get to see them for a lot of hours." A girl stated, "Both of my parents work and I have to stay home from every place to get the meals and watch my

brothers and sisters. Every time I do go away I don't have any fun begain I have to take them along and watch them there too because my mother and father will be working. When my parents come home they are tired and cross."

A number of children indicated that they were resigned to the realities of war and were attempting to rationalize the situation. A girl said, "War is an enemy and when I read in the Bible what it says if war goes on but I can't and you can't stop it." Another concluded her theme by saying, "But them Germans and Japs will get paid back some day. And if the American people won't, God will." An Amish girl stated, "One should never complain about the war because it is supposed to be so." A boy said, "This war is a terrible thing. It seems like it had to come and couldn't be avoided. But since we are in it there is nothing we can do but fight for what we think is right." Another boy concluded his theme with, "But I guess one should not grumble if we stop to think how it has been going on across the seas. After all I guess we deserved a punishment."

SUMMARY

Although the technique of securing free expression of attitudes by means of a written theme has its limitations with children in the seventh and eighth grades, nevertheless much material of value to the psychologist can be obtained in this way. In the present study it has been found that mentioning of rationing and shortage of merchandise was the outstanding characteristic of themes written on the subject, "How the war affects me." Themes written by Amish children indicated much less desire to help in winning the war than did themes written by non-Amish children, the difference being statistically significant. Slightly over a third of all children indicated that their lives had been saddened by the war. Seven per cent of the children expressed fear for personal safety and well-being and for the safety of loved ones. Only six per cent of the children expressed hatred for the enemy. Eleven per cent of the children specifically expressed a desire for the coming of peace. Also, there was some expression of a desire to escape from the constant pressure of war, school-room difficulties were rationalized in terms of the war, break-downs in the stability of the home environment were suggested, and a number of children indicated that they were resigned to the fate of war.

THE RELATION OF INDIVIDUAL VARIABILITY TO EMOTIONALITY*

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The present study has had as its purpose the investigation of possible relationships between emotional stability and individual variability in educational attainment. In more precise terms the problem has been one of determining whether groups selected as being of high, average, and low emotional stability will differ in the amount of variability evinced by the members of such groups.

As in a previous investigation of individual variability as related to intelligence,[4] individual variability is employed in the present paper to refer to the extent to which an individual differs in his several abilities as revealed in a series of measures. Although it is probably not unreasonable to assume that individuals who are unstable emotionally may show more variability than stable individuals, such a hypothetical relationship remains at present almost without experimental test. To the writer's knowledge, only one published investigation has had as its purpose the consideration of a problem of this nature. This is a study by Bown[1] in which a correlational technique was employed to determine the relationship between the extent of individual variability upon various tests and subtests of intelligence and scores upon two scales of the Bernreuter Personality Inventory. In Bown's investigation relationships between individual variability and scores upon the Bernreuter were negligible.

Studies of the extent of individual variability, as, for example, those of Hull,[7] Chen,[3] and Stout,[8] have agreed in finding such variability to exist to a considerable degree in the populations studied. It would appear profitable, then, to investigate the possible connection of such demonstrated variability to emotional stability, a characteristic which reasonably might be expected to bear some relationship with individual variability.

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* The data upon which this study is based are contained in a thesis presented by the writer in partial fulfillment of the requirements for the degree of Doctor of Philosophy, George Peabody College for Teachers, 1941. The writer wishes to express appreciation to Dr. Paul L. Boynton for guidance and helpful advice in the preparation of the original study.

METHOD OF STUDY

The data which form the basis of the present investigation have been derived from the scores of six hundred sixth-grade school children upon the Unit Scales of Attainment and upon Boynton's B. P. C., a test of emotionality. These subjects were selected from a group of seven thousand sixth-grade pupils for whom scores upon the two tests mentioned had been obtained in connection with a project of the Coördinated Studies in Education. The subjects represented twenty-seven states, the greatest number being from the Northwest and the Midwest.

The bases of selection of cases were certain percentile points upon the B. P. C. as obtained for a normative group of twelve hundred children selected from the sixth-grade records of the Coördinated Studies in Education. The B. P. C. may be scored upon three keys relating to conduct, school, and personality adjustment as well as upon a general key. In the present investigation only scores upon the personality key are considered since it was felt that the sort of adjustment with which this key is concerned was more significant for the present study than adjustment in terms of conduct or the school situation. An attempt was made to select three groups which, respectively, might be considerd as evincing high, average, and low degrees of emotional maladjustment. For the group of high emotionality, indicative of emotional maladjustment, one hundred boys and one hundred girls were chosen from among those individuals whose scores lay above the 85th percentile of the normative group. For the average group, one hundred boys and one hundred girls were selected whose scores lay between the 40th and 60th percentile points. The group of low emotionality, that is, the group designated by the test as being emotionally well-adjusted, was selected in a similar manner from those individuals whose scores lay below the 15th percentile. Thus, any individual in any group is separated by at least twenty-five per cent of the normative population from any individual in any adjacent group. In Table 1 are given the scores upon the B. P. C. for the three groups according to sex.

From each classroom group the records of which were used an equal number of individuals of high, average, and low emotionality were selected. This appeared advisable in view of the fact

that the amount of emotional maladjustment evinced is probably in part dependent upon the particular classroom group to which a child belongs. Boynton, Dugger, and Turner,[2] for example, have presented evidence to indicate that emotionally-unstable teachers are more likely to have emotionally-unstable students in their classes than are teachers who are more stable emotionally. Furthermore, certain preliminary examinations of the data for the sixth-grade group of the Coördinated Studies in Education indicated that individual variability was in itself dependent to some extent upon the classroom group to which a child belonged. To render such local influences more nearly equivalent for the three groups, the plan of selecting an equal number of individuals of high, average, and low emotionality from each classroom was followed.

TABLE 1.—SCORES UPON THE B. P. C. FOR THE THREE GROUPS

Group	Boys		Girls	
	Mean	SD	Mean	SD
High Emotionality	66.9	9.48	66.4	8.58
Average Emotionality	35.4	3.10	33.5	3.09
Low Emotionality	13.6	3.84	13.3	3.61

No attempt was made to equate groups with respect to such variables as chronological age, intelligence, or various environmental influences. This may have obscured certain possible relationships. On the other hand, since matching groups would probably tend to make individuals atypical insofar as classroom situations are concerned, the present method of selecting cases would seem to have value in revealing the relationship which may be expected to appear between individual variability in educational attainment and emotional maladjustment as it is found among children in rather usual classroom situations.

For each of the six hundred individuals selected an individual variability score was obtained with respect to the child's performance upon the Unit Scales of Attainment. Scores upon only six of the subtests of the battery were employed. These six

were: reading comprehension, geography, elementary science, arithmetic fundamentals, spelling, and English usage. These six were selected rather arbitrarily. It was believed, however, that the six were fairly representative of the subject-matter usually presented in the sixth grade, and that they would not show a high degree of overlapping.

In obtaining an index of individual variability for each child, the scores of the child upon the six subtests were converted into standard scores based upon the deviations of the child's score in sigma-units from the mean of his own classroom group. Since individual variability may be in part a function of certain purely local environmental factors, the writer believed that scores based upon deviations from the classroom group of which a child was a member would be more meaningful than scores based upon deviations from the means of a normative population.

With the six standard scores as a basis, an index of individual variability was found for each child in accordance with a procedure suggested by Hertzman.[6] This procedure consisted in finding the sum of all possible differences with respect to the standard scores. Since six tests were employed, there were fifteen possible differences between scores. As only six different test scores were used in the present investigation, the sum of all possible differences appeared to the writer a more justifiable index of individual variability for this analysis than the standard deviation of scores used by Hull[7] and the interquartile range used by Hertzman[5] in other studies of such variability.

For the three groups measures of central tendency and dispersion were found and certain percentile points of the distributions as well. It is largely in terms of comparisons of these indices for the three groups that the results of the present investigation have been expressed. It will be the purpose of the remainder of this paper to discuss such intergroup comparisons and their possible significance.

THE RESULTS

In the same manner as that employed by the writer in the previously mentioned study of individual variability and intelligence,[4] the various intergroup comparisons will be discussed in the following order:

1) Comparisons of the means.

2) Comparisons of the 90th, 75th, 50th, 25th, and 10th percentile points.

3) Comparisons of the standard deviations.

4) Comparisons of the means, standard deviations, and the 90th, 75th, 50th, 25th, and 10th percentile points for the two sexes.

TABLE 2.—A SUMMARY PRESENTATION OF THE INDIVIDUAL VARIABILITY SCORES OF THE THREE GROUPS

	Sex	High Group	Middle Group	Low Group
Mean	Boys	13.82	13.84	12.16
	Girls	13.26	13.72	12.80
	Both	13.34	13.78	12.48
Sigma	Boys	4.50	5.32	5.26
	Girls	5.12	5.32	4.34
	Both	4.84	5.50	4.84
P_{90}	Boys	18.67	20.50	19.00
	Girls	19.83	21.00	19.11
	Both	19.60	20.80	19.07
P_{75}	Boys	16.13	16.73	14.71
	Girls	17.00	16.44	15.55
	Both	16.44	16.60	15.04
P_{50}	Boys	13.55	13.29	11.20
	Girls	12.00	13.16	12.43
	Both	13.03	13.22	11.94
P_{25}	Boys	11.11	9.86	8.55
	Girls	9.30	10.35	9.47
	Both	10.17	10.13	8.92
P_{10}	Boys	8.33	7.60	6.50
	Girls	7.50	7.33	7.33
	Both	7.85	7.54	6.92

The scores which formed the basis of these analyses are given in Table 2, which shows the means, standard deviations, and

certain percentile points for the three groups, for boys, girls, and for both sex groups combined.

When the means of the three groups are compared, differences are found to be small and unreliable where comparisons between the high and middle groups are concerned, there being only from fifty to sixty-eight chances in one hundred that the true difference between any two groups is greater than zero. When the high and low groups, and middle and low groups, however, are compared, a tendency occurs among boys and among both sexes combined for greater emotional maladjustment to be associated with greater individual variability. Although these differences do not reach the conventionally accepted criterion of statistical significance, they do indicate about ninety-nine chances in one hundred of a true difference greater than zero. Differences between high and middle, high and low, and middle and low groups with girls, however, are small and lacking in statistical significance.

When the various percentile points given in Table 2 were selected for comparisons, a rather similar state of affairs was found. Of forty-five possible comparisons between groups, thirty-four indicated greater variability upon the part of the group with the higher emotionality score. Of the thirty-four, however, only one was as much as three times its standard error. This was in the comparison of high and low groups for the 25th percentile for boys. Furthermore, of the remaining thirty-three, only six were as much as twice their standard errors. Again a slight tendency is indicated for greater individual variability to be associated with poorer emotional adjustment. The tendency, however, is neither marked enough nor sufficiently consistent to warrant any conclusions as to the relationship of emotional stability and variability in educational achievement as indicated by the tests employed.

When the standard deviations of the distributions are compared, no consistent trends are revealed. Of nine possible comparisons between groups, five indicate greater dispersion for the lower group of a pair, three for the higher, and one an equal amount for both. None of these differences was statistically significant.

A final comparison of the sums of all possible differences was made in comparing the two sexes with respect to means, standard

deviations, and the percentile points studied. No noticeable trend was observed with respect to any of the statistical indices. When means were compared, only from about fifty-one to seventy-nine chances in one hundred were indicated that the true differences between boys and girls at any one level was greater than zero. Of the comparisons of boys and girls at the various percentile points, of fifteen possible differences eight indicated greater variability on the part of the girls and seven on the part of the boys. None of these reached the conventionally accepted criterion of statistical significance. When standard deviations were compared for the sexes in each of the three emotionality groups, from fifty to ninety-six chances in one hundred were indicated of differences greater than zero. Sex, then, does not appear to be related to individual variability in the population studied.

It would appear that the present investigation has indicated no very significant relationship between emotionality as revealed by the B. P. C. and individual variability scores upon six subtests of the Unit Scales of Attainment with respect to central tendency, dispersion, or percentile position. No relationship is demonstrated between sex and individual variability. The most that can be said is that a slight but not entirely consistent trend is observed for emotional instability to be associated with greater individual variability than is stability.

It has not been a primary concern of the present analysis to investigate the extent of individual variability in educational achievement. Since, however, little published information is at present available concerning the extent of such variability in the schools, findings concerning the extent of individual variability which emerged in this investigation might be of some interest.

TABLE 3.—AVERAGE MEAN DIFFERENCES WITH RESPECT TO THE SIGMA-SCORES OF THE THREE GROUPS

Groups	Boys	Girls	Both
High Emotionality	0.922	0.884	0.903
Average Emotionality	0.923	0.914	0.918
Low Emotionality	0.810	0.853	0.831

Findings concerning the average mean difference with respect to sigma-scores upon the six tests are given in Table 3. The

mean difference is found by dividing the sum of all possible differences by 15, the number of comparisons possible when six scores are concerned. Examination of the table reveals that the average mean difference is found to range from 0.810 to 0.923. If one might assume that the scores of the average individual vary around the mean of his class group, this would indicate that the mean difference between any two tests in educational achievement covered for this individual approximately thirty per cent of the range to be anticipated in a group distributed in accordance with the normal curve.

TABLE 4.—MEANS AND STANDARD DEVIATIONS OF THE RANGE IN SIGMA-SCORES OF THE THREE GROUPS

Groups	Boys		Girls		Both	
	Mean	SD	Mean	SD	Mean	SD
High Emotionality.....	2.07	0.71	2.07	0.83	2.07	0.77
Average Emotionality.....	2.11	0.77	2.00	0.73	2.06	0.75
Low Emotionality.....	1.86	0.85	1.99	0.72	1.93	0.78

Table 4 presents similar data with respect to the range of sigma-scores found within the subject population. It may be seen that the average range for the groups varied from 1.86 to 2.11, a distance that in a normally distributed group would cover approximately two-thirds of the area of the curve for the group.

It is perhaps interesting at this point to compare these findings with those concerning the average mean difference in scores and the average range in scores found in the study of individual variability and intelligence by the writer[4] in which the same techniques of analysis were used. In the study of intelligence, the mean difference in individual variability scores for the groups of high, average, and low intelligence ranged from 0.825 to 1.024. The average ranges were from 1.85 to 2.31. These may be seen to approximate fairly closely the findings in the present study.

Probably more significant than any slight trends emerging in this investigation for emotional instability to be associated

positively with individual variability is the essential similarity of the three emotionality groups studied and of the two sex groups with respect to individual variability. Also significant is the finding that when cases are selected on the basis of emotionality and independently of intelligence the amount of individual variability emerging is strikingly similar to that found when cases are selected on the basis of intelligence and irrespective of emotional stability. It would appear, then, that irrespective of emotional maladjustment, intelligence, or sex, children in the elementary school may be expected to vary widely in their attainment in various fields of subject-matter.

In summary, then, within limits of the particular tests used, the method of selecting cases, and the statistical analyses employed, the following statements concerning individual variability would seem warranted by the data:

1) A slight tendency appears for boys with low emotionality scores, indicative of less emotional maladjustment than higher scores, to show somewhat less individual variability than groups of average or high emotionality. The trend, however, is not statistically significant.

2) Only negligible differences are found in the three groups with respect to the dispersion of scores.

3) Sex differences in individual variability were neither consistent nor statistically significant.

4) Irrespective of emotionality level or sex, a wide extent of individual variability was observed, the average mean difference being close to one sigma-unit of a normally-distributed group and the range of sigma-scores for the individual being approximately two sigma-units.

From the theoretical standpoint, the findings of this study and the study upon individual variability and intelligence would suggest the investigation of other characteristics of children which might possibly reveal closer relationships with individual variability. From the practical standpoint, probably most pertinent is the finding that without regard to sex, intelligence, or emotional maladjustment, a large amount of individual variability may be anticipated in children similar to the subject population of this investigation. This would indicate the difficulty of predicting with any degree of certainty what a child may achieve in one field of subject-matter from what he achieves

in others. Rather, each child must be considered as an individual possessing an organization of potentialities peculiar to him alone.

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AN ANALYSIS OF THE REVERSAL TENDENCY OF FIFTY SELECTED ELEMENTARY-SCHOOL PUPILS

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For more than fifty years, doctors and laymen have been puzzled by a curious phenomenon of apparent abnormality which has been called by various names, the most common being: word blindness, congenital word blindness, mirror writing, mirror reading, and reversals. Despite the name, the fact is that some persons may read or write numbers, letters, and words in reverse. Whether this tendency is due to incorrect training, to eye defects, to an abnormal brain condition, or to emotional disturbances, has long been a subject of speculation and investigation. Research has been conducted and articles have been published in an attempt to discover not only what the individual does or how he does it, but, primarily, why he performs in exactly the reverse of the accepted method.

From the beginning, the inclination has been to connect reversals with left-handedness. As far back as we have recorded history, left-handedness has been considered abnormal or sinister, while right-handedness has been considered the normal or dextrous. From such assumptions have grown the words designating these two conditions, 'sinistrality' or left-handedness and 'dextrality' or right-handedness. An article published in 1896 by Allen and Contab[1] calls mirror writing 'left-handed writing.' Teachers who have observed in their pupils the tendency to reverse numbers and letters have usually attributed it to mere directional confusion, though many have noticed that the left-handed children seemed to make more reversals than right-handed children. This led to the quite generally accepted theory that reversals were in some way connected with left-handedness.

Gates[2] in his *Improvement of Reading* believes too often children have been criticized as careless or as making wild guesses when instead they are actually reporting what they see. The mystery

to this is that children with these difficulties are able to learn to read at all. That this tendency to reverse might lead to particular reading difficulties was impressed upon one of the writers of this paper after first-hand experience with two extreme and several minor cases of mirror-writing.

Much emphasis is being placed today upon reading and the problems connected with it. It is evident that a child who sees in reverse or writes from right to left must be handicapped in a schoolroom. Though he may be normal or even superior mentally, his adjustment will necessarily be more difficult than that of a child without such handicap.

In this research, an attempt has been made to discover to what extent reversals are made throughout the elementary school, at which age level they are most prevalent, when they begin to decrease, and, as far as possible, to determine their relation to reading difficulties. Inasmuch as one of the writers is a teacher in the elementary schools in Portland, Oregon, one of Portland's schools was selected for the testing program.

Four tests to measure the reversal tendency were given to the three hundred twenty-four children in this building. The first test was a series of thirty-five symbols, most of which were unfamiliar. Each symbol was placed on a four-by-six card, printed large and in black ink. Each card was displayed for three seconds, then removed while the children reproduced the symbol on paper in the way in which it appeared to them.

In the second test the children were asked to write the numbers from 1 to 18, and to write the alphabet. In the beginning classes, many of the children were not familiar with all of these, but were encouraged to do their best. When special difficulty was encountered, some of the letters and numbers were named by the examiner, the object being to see how they were made, not whether they could be named.

The third test consisted of nine rows of words. In each row were several words, two of which were alike, and one the reverse of these two, as: *nut not cot ton not.* The children were asked to find the words which were alike and connect them with a line.

The last test was composed of groups of two or three words. In each group were words with approximately the same letters but in reversed positions, such as *owl* and *low*, *froth* and *forth*. Two different tests were given, a simple one to the first two grades

and a more difficult one to the remaining six grades. In conducting this test, the examiner stated: "Here are two words. I shall name one and you draw a line under the one I say." This procedure was used for each group.

After the four tests were scored, the total number of reversals for each child was determined. Previous research has proved that there is a greater tendency to reverse unfamiliar material than familiar. The reversals on the first test were given twice the value of those of the other tests since they dealt with unfamiliar material and were, therefore, more likely to give the information sought.

The fifty children who made the greatest number of reversals according to the scoring were selected for intensive study. They were then given the following ten tests to determine hand and eye dominance: cutting, winding, throwing, receiving (with non-dominant hand), easy reaching, energetic reaching, batting, eating, thumbs-up test, and cone ocular test.

The Department of Special Education of the Portland Public Schools rendered valuable service in the giving of intelligence tests to these fifty children. The results were both surprising and significant. Achievement tests for grade placement helped materially in determining whether the children were working up to capacity.

Finally, appointments were arranged with the parents of these children. Through these conferences it was possible to discover types of emotional disturbances which were not shown on the school records. The parents seemed intensely interested and many conditions were discussed which probably have had decided influence upon their children but which, to the parents, had previously seemed insignificant. The particular questions asked were:

1) Has your child ever shown any tendency to left-handedness?
2) Are any relatives left-handed?
3) Have you had any reason to suspect eye or ear defects?
4) Any speech defect?
5) Is the child nervous or irritable?
6) Sleeps well?
7) Any tendency to asthma?
8) Glandular defects?
9) Jealous of other children?

10) Other physical history which might upset the emotional life of the child?

Two other factors which seemed vital were: home conditions, especially if the homes were broken, and whether the child had been adopted. Questions on these points were avoided, but the information was sometimes gained during the discussion.

The results of this study are discussed in subsequent paragraphs under the following headings:

1) Tests for reversals
2) Dominance tests
3) Physical and emotional history
4) School history

1. TESTS FOR REVERSALS

This study verifies the findings of previous studies in showing a decrease of the reversal tendency with maturation, since forty-six per cent of the fifty cases were first-graders while eighty-eight per cent were found in the first three grades. The remaining twelve per cent were divided equally between grades IV, V, VI, and VII.

Since the fourth and fifth grades had only two cases each and the sixth and seventh only one each, it is difficult to assign any significance to results in the last four grades. It is interesting to note, however, that the chronological ages show more than their normal increase between grades II and VI. This is no doubt due to the failures that have occurred during this period.

There is a gradual decrease in percentage of reversals with maturation, per grade, per child, through the sixth grade. Tests 1 and 4 showed approximately the same average. Test 1 dealt with unfamiliar material. In test 4, though similar words were used and the children were asked to underline those named, much of this material also was unfamiliar. Words such as *supreme* and *supernal*, used in grades III to VIII, required the ability to analyze them phonetically. The writers believe the use of unfamiliar material accounts for the higher percentages in these two tests. Test 2 consisted of the writing of the digits to 17 and the writing of the alphabet. Only the ones written were considered, as many primary children were unable to complete either the digits or the alphabet. Test 3 was merely

the joining of words alike as: *on so of no on.* This would appear to be the least difficult of the four and it proved to be the case.

Special mention should be made of the one seventh-grade child who made 8.5 reversals in test 1. She is a child with an IQ of 88, a serious sinus infection, a history of school failure, and from a home where a foreign language is spoken.

2. DOMINANCE TESTS

Various dominance tests were given to determine handedness and eyedness. After these tests were tabulated, three methods were followed to interpret the findings.

The first method is one proposed by Pace[6] in a program for testing laterality in which he used the "University of Minnesota Speech Clinic Questionnaire." According to this criterion, persons with laterality index below thirty per cent were considered left-handed, those between thirty per cent and eighty-five per cent were considered ambidextrous, and all above eighty-five per cent were classed as right-handed. The second method is the one used by Gordon[4] in his study of left-handedness and mirror writing. His conclusion is that left-handed throwing indicates left-handedness. The third method (the one ordinarily used) is to determine handedness by noting the hand used in writing.

There was a decided lack of uniformity in determining hand dominance. Ambidexterity is believed to be a factor in causing the reversal tendency. Pace's method showed ninety-six per cent of the fifty to be ambidextrous, while the other two methods combined placed only eight per cent in this class. The averages show 58.6 per cent to be right-handed; 34.7 per cent, ambidextrous; and 6.7 per cent, left-handed. Pyle and Drouin[7], in a statistical study of left-handedness, found 6.7 per cent of 13,438 pupils tested to be left-handed. Recording the rate of speed as the children tapped with both hands was the method used in their study for determining handedness. They believe any other method is inaccurate as the child's original tendency may have been changed for convenience or by a teacher.

Left-handedness has always been associated with reversals. An average of the three criteria places 41.4 per cent in the ambidextrous and left-handed groups. Such variation in determining handedness would seem to make this figure inaccurate, yet forty

per cent of the children appeared to be left-handed, ambidextrous, or to have history of left-handedness in the family.

Of the ten dominance tests given, the thumbs-up test gave the highest score, sixty-six per cent of the children giving left-dominance, with two per cent alternating from left to right. In the cone ocular test, fifty per cent showed left-eye dominance, with four per cent alternating. A number of authorities agree that persons with left-eye dominance are inclined to make more reversals than right-eyed individuals. According to this test half of the fifty children suffered from this handicap. Some authorities consider throwing a test for left-handedness. Only four cases used the left hand in throwing; two alternated. This compares favorably with the writing test in which five used the left hand.

It is significant to note that no child showed complete left dominance and none of the fifty tested showed complete right dominance. The thumbs-up test was the only one in which all five left-handed writers showed left dominance. Batting was the only test in which all of the five gave right dominance. It is interesting to note that only one child showed left-eye dominance in the ocular test. Easy reaching was performed oftener with the left hand by these five reversal cases. Although these children are considered left-handed, the data showed the right hand to be used oftener than the left, the right being used twenty-eight times or fifty-six per cent as compared to twenty-two times or forty-four per cent with the left.

3. PHYSICAL AND EMOTIONAL HISTORY

The following four sources were used in this study in securing physical and emotional history of the fifty pupils:

a) Opinions of teachers.

b) Information received during conferences with parents.

c) Information supplied for children who had been patients at the child guidance clinic.

d) Test data furnished by the Department of Special Education of the Portland Public Schools.

The fifty reversal cases showed a total of one hundred ninety-five such physical and emotional difficulties. Some children were found to possess few, yet the average was 3.9 per child. One child gave evidence of eleven; one, ten; one, nine; two, eight;

one, seven; four, six, five; and eight, four. Two children showed only one each. The child with eleven has had two grade failures and continues to show a retardation in school. She is left-handed, left-eyed, overweight, a twin, from a broken home, has poor coördination, a serious sinus infection, and defective vision with glasses for correction. The twin sister is not left-handed nor left-eyed but otherwise possesses the same characteristics. Her school work is poor, but is superior to that of her sister. The boy who has ten of the classified traits is also left-handed, has failure history, speech defect, defective eyesight with correction, and eczema.

Forty-six per cent of the fifty children are left-eyed. Marion Monroe,[5] Gates and Bennett[3] and Witty and Kopel[8] believe definitely that left-eyedness contributes to the tendency to reverse. Pace[6] names mixed eye dominance as contributory to retarded reading. Seventy-four per cent, or thirty-seven children, are left-handed; left-eyed and right-handed; or there is history of left-handedness in the family. The thirteen children not included in this group possessed one or more of the following traits or conditions: timidity, nervousness, violent temper, poor coördination, speech defect, asthma or related difficulty, or were from broken homes.

4. SCHOOL HISTORY

In the school in which the tests were given, it has been the custom to permit children to proceed as rapidly as possible in the first three grades, but actual grade placement has not been required. Determination of retardation has therefore been based upon achievement tests and upon statements from teachers as to progress.

Intelligence quotients of forty-nine* cases show the following: 42.9 per cent of the children have normal intelligence, 44.9 per cent are above normal, while only 12.2 per cent are below normal. The IQ's range from 75 to 133, with an average IQ of 107.7. These data appear to substantiate the theory that intelligence is not related to the tendency to reverse.

The following tests were used to determine grade placement: New Stanford Achievement Tests, Gates' Primary Reading

* One child was transferred to a private school because of retardation before his IQ was determined.

Tests, Progressive Achievement Tests, and Monroe Reading Tests. From these we find: retarded, eight; normal, thirty-two; and accelerated, ten. Besides the eight children who show definite retardation nine have records of at least one term's retardation due to school failure.

Ten cases were reported by teachers as failing at some time during their early years. Five cases are designated in this way: "Reading, fair"; "IQ requested by teacher" (indicating suspicion of difficulty); "Test requested by teacher as child is emotionally insecure"; "Demoted because emotionally maladjusted"; and "Irresponsible and maladjusted."

Two cases are sons of elderly parents. The father is a musician who, the mother admits, is very emotional and extremely severe in his discipline. One of these cases gives evidence of chorea.

One case did not talk until four years of age. His father taught him to talk by the use of a mirror. He still has difficulty enunciating clearly but has done good work, due, no doubt, in large measure to his unusually understanding and patient parents.

How much retardation can be ascribed to the reversal tendency of these children is, of course, a question. But the fact that many are retarded in spite of normal mentality, tends to indicate that reversals may be responsible for at least some of the trouble.

CONCLUSIONS

These conclusions confirm studies previously made and add some few generalizations. From this study we find the following:

1) Children with all degrees of intelligence may be subject to the reversal tendency.

2) Left-handedness alone is apparently not responsible for the reversal tendency, as many children who appear to be right-handed reverse.

3) Eye difficulties appear to be definitely related to the reversal tendency, since twenty-eight per cent of the children had defective eyesight. Ten per cent more had questionable eyesight.

4) Mixed dominance seems to be related to reversals, since fifty-six per cent of the children tested were apparently right-handed and left-eyed, or left-handed and right-eyed.

5) It appears that asthma and similar difficulties are related to reversals, since twenty-eight per cent of the children suffered from these conditions.

6) No one factor is responsible for the reversal tendency.

7) Because left-handedness, defective vision, mixed dominance, and physical defects can cause emotional blocks, and because children may appear normal at times and at other times show an extreme tendency to reverse, it seems reasonable to suspect that emotional imbalance is one of the principal causes of the reversal tendency.

8) Children who reverse should be examined for emotional instability, and all attempts made to create a feeling of security both in the home and at school.

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CHILD PSYCHIATRY IN WAR-TIME BRITAIN

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In Britain the first wartime preoccupation of those responsible for children was to remove as many as possible from target areas, and at the outbreak of war many hundreds of thousands were evacuated to widely scattered reception areas. This action undoubtedly saved large numbers of children from death or injury when raiding on London and the large cities began, and on this ground alone the evacuation scheme was justified. There is evidence, too, that the change from city to country life brought great physical benefit to many of the evacuees; fresh air and sunshine proved a health tonic.

Nonetheless, it is important to consider also the effect that such uprooting had on the minds of the children, and it is this aspect of evacuation that is being considered here.

Subsequent experience has demonstrated that the terrors of an air raid are considered by children to be less fearful than separation from the parents. "The immediate effect of evacuation, which is separation from the parents and a known and accepted environment, is worse than the immediate effect of raiding."[5]

That was the conclusion based on experience in Liverpool; and in Bristol we could confirm the findings. The city psychologist of Bristol made a survey of seven thousand children after several severe raids. Four per cent only showed signs of strain. Overt psychological symptoms were evident to a much greater extent among children of five to seven (general nervousness, trembling, crying and aggressive behaviour), while there was a much heavier incidence of psycho-somatic disorders among children of eleven to fourteen (headaches, anorexia, indigestion, enuresis, soiling) Dunsdon.[8]

A few months later I carried out a follow-up survey of all the inmates of a children's hospital, which was damaged in an air raid. These children were evacuated in the middle of the night from their shattered hospital at the height of a very severe raid, under particularly terrifying circumstances. Sixty-one per cent of the children showed signs of strain for a period of three weeks to two months, but the majority recovered spontaneously after this time.

Ex. 1.—Janet, aged three, at first on her return home awoke frightened by the sirens and wouldn't say a word to the grown-ups about what had happened. But at the end of three weeks she was overheard telling her dolls about "how the bombs fell and how the windows fell on us; a man came and took me away to another hospital in a car." After this discussion of the incident with her dolls, she was much steadier. She slept through the alerts and only woke when the barrage was particularly heavy. She had no remaining nervous symptoms.

I found that after seven months, eleven per cent of the children showed persistent symptoms, but that in this survey symptoms were limited to the age-group one to five.

Ex. 2.—The most severe case in this group was a child aged three at the time of the raid—the youngest of three children. Her mother, who was suffering from what she called a 'nervous breakdown,' described the child as coming home with 'shattered nerves.' She screamed at night, talked and shouted in her sleep, cried when spoken to, picked sores on her fingers and face, suffered from diurnal and nocturnal enuresis, and soiled herself.

The reaction to subsequent raids was on the whole remarkably slight; out of eight children who had severe later experiences, only two showed pardonable anxiety, and they made rapid adjustment.

Ex. 3.—Diana, aged nine, had suffered from stones in the kidney for over a year, and had frequent attacks of severe renal colic. She had learnt to control the expression of her pain, as she found that her crying upset her mother. She was moved into hospital for operation, and was sent home after the night the hospital was hit. A few nights later her own home received a hit, and her mother and two older sisters 'went to bits.' But Diana rallied them, and got them in good order to the wardens' post. She was admitted to another hospital for a further attempt at operation. This hospital too was hit, but Diana was cool and happy, and cheered up the other children in the hospital shelter.[4]

The most striking finding was the extraordinary toughness of the child, and his flexibility in adapting to potentially threatening situations. Mirs, however, in the Spanish Civil War had noted children were more tranquil under bombing than adults.[11]

It may be argued that this was a surface adaptation, and that deeper probing might reveal underlying disturbances; and, in

fact, one psychologist working in Cornish hostels for difficult evacuated children found that the Rorschach test showed definite reactions in children exposed to bombing;[12] and his work was confirmed by a child guidance officer in Huntingdonshire who pointed out that this reaction indicated serious endogenous anxiety aroused by traumatic experience.[1]

A more detailed analysis of a case at the Bristol clinic demonstrates this:

Ex. 4.—Peter, aged eight, was referred to us in June, 1939, as a maladjusted child who could not read or write. He was the older of two boys. There were dissensions between the parents. He had been a very cross baby, who lost his temper badly over trivial injuries; his mother described him as bloodthirsty. He was sent to nursery school at three and a half, and his defiance and bad behaviour reduced his teacher to tears.

He attended for play therapy, and his play was aggressive, destructive; baby animals were shot, Indians chopped off cowboys' heads, cowboys cut off Indians' heads; boats were sunk; people drowned. Everything had to be completely destroyed.

Before the raids started in April, 1940, he played at bombing, and always destroyed the English! But in June, 1940, the raids began in Bristol—his phantasies were coming true. After the first raid, he built a barricade in the playroom. His mother described him as a devil at home, and in the playroom his play became more sadistic. He made-up the crocodiles' mouths with red chalk. Bombing play continued, but he showed signs of fear when planes flew overhead. (This was the time of daylight raids). The bombing play continued through the autumn months, but he showed constructive tendencies, building model shelters. He began to show an interest in ambulances, and indicated that he felt accidents were a punishment—an uncomfortable feeling for a sadist when there were scores of bombing 'accidents' a night. But though he built hospitals, he bombed the nurses and the wounded. His play was very cruel, and he gloated over the wounded.

In January, 1941, after a severe raid, thirteen houses were destroyed in his road. He told me how he heard a man crying for help in the ruins; but they didn't get him out because they were too scared. He spent his playtime throwing 'bombs' at groups of men, shouting: "Cowards!" He was evidently feeling

his neighbours should be punished, and projecting some of his guilt.

His mother described him as a bloodthirsty little devil, who often talked of death. He used to ask his mother if it would be worse for her if he was killed, or if the baby was. The next four sessions he spent building extraordinarily strong models of houses, and then testing them to see if they would stand up to missiles.

Then in April, 1941, a shelter in his street had a direct hit, and twenty-one of his friends and neighbors were killed. Peter was very upset and cried bitterly. He was evacuated to a farm, and in August was found to be happy, and not wanting to go home, even when his mother visited. He returned a much better adjusted boy in April, 1942.

This case shows how external hostility aroused to fever pitch the aggressive impulses which were a powerful factor in this boy's maladjustment.

But, as Anna Freud points out, the fear of air raids assumes different dimensions in those children who have lost their fathers as a result of bombing.[6]

Ex. 5.—In January, 1942, I saw Janet, aged six years and eleven months who was referred to me because she was difficult and disobedient. Her father, who had been an A.R.P. warden, was killed in a raid in December, 1940. The mother was a woman of very high standards who had repressed her own feelings completely—so much so that she could admit no feeling for her two girls after her husband's death.

The mother expected Janet to behave like a grown-up and be reasonable, and treated her as an equal. Janet and her younger sister talked as if their father was alive, but in another country: "Daddy's not with us. I'm sorry he's gone."

The children embarrassed their mother by beseeching any man, baker or milkman, who visited the house, to come and live with them and Mummy and be our Daddy. Janet's play was very much concerned with daddies. She tried to keep me for herself, clung to me, insisted that I saw her to the waiting-room; drew pictures of me; teased me; asked, couldn't she and her sister have a new daddy, like other children at school?

Meanwhile the social worker's interviews with the mother gradually uncovered the mother's suicidal impulses, and at the end of six months the mother was able to leave the children and

go for a holiday; while Janet, no longer having to bear responsibilities beyond her years, became much more amenable.

The same phantasy of the dead father surviving has been reported by Burlingham and Freud in their second brilliant report from the Hampstead Nursery.[7]

The loss of the mother is an even more serious tragedy.

Ex. 6.—Tom, twelve, had been evacuated from London with his younger sisters. While he was evacuated, his home was destroyed, his mother was killed, and two brothers and two babies were seriously injured. The distracted father had no time to let Tom know, and the news of his mother's death was given him by his billet mother, who put a coin in his hand, and told him to go to the pictures. Obviously she was at a loss to cope with such a situation.

The boy had no chance to show his grief and despair, and before long got into trouble for an escapade with some other boys. He was sent back to London by the magistrates, who seem to have forgotten he had no home to go to. His father asked an aunt, to whom Tom was much attached, to look after him. But unfortunately this poor woman had been blinded in another air raid. Tom's chief occupation was to lead his aunt about rather as if he were a dog.

He managed to find his older brother in one of the hospitals, and hear what had happened to his mother. After a few weeks with the blind aunt, he could bear it no longer, and ran away. While he stole a bicycle, was caught, and handed over to the police. When I saw him, he seemed to be encased in a thick shell. He spoke without emotion, but said he would like to play tricks on everyone. Such a boy without loving understanding may become a dangerous criminal.[4]

I believe he had a grievance against the whole world. Nobody had listened to his grief. He had lost his mother, his home, and his aunt was blinded. Everything had been taken from him. He was going to take from everyone.

This stress seems to have been almost unbearable, but Brian, aged ten, had perhaps an even tougher time.

Ex. 7.—He was an only child and, when he was seven, was left with his mother and grandparents, while his father was fire-watching at his place at work. It was a cold night, and the old people persuaded the mother not to take them to the shelter, but to stay at home.

When the alert sounded, they all went to the cellar, and, as Brian told me: "I laid my head on Mummy's lap to go to sleep. The ceiling came through, and I was on the floor, my mouth was full of dust. The others were all covered up."

Brian crawled out through the debris, was found by a neighbor, who took him to a wardens' post, and he was not found by his father till the next morning. The distracted father had received a message that his house was hit, and had hurried back and helped the rescue squad extricate his wife and in-laws. The grandfather was dead; the mother and grandmother died in hospital.

Brian told me: "It worries me when the sirens go I think of Mummy. I think she still is there in the house. I want to go with her to the shelter."

Brian was referred to me because he stayed out all night. He was living with his father in lodgings. Once he wandered off to some relatives; another time he went from Bristol to Cornwall to look up his old friends who were evacuated.

He did not speak of raids at home, but sat quiet in the alerts (when before he used to run about in the factory shelter). He stole the foster-mother's ring and gave it to a girl at school, and took money on false pretences from his teacher. He met people in the streets and begged from them, saying he had been starved. He truanted from school to wait about outside a factory where a maternal aunt worked.

His play was chiefly concerned with themes of burial, and he began to improve as his play included a woman figure. He relapsed when his father changed his job and went to work some distance away, but improved again when his foster-mother's boys returned from evacuation. His loneliness was assuaged, and all three went on expeditions into the country together.

What the child fears most in the air raids is not his own death, but that his parents may be killed, and he be left an orphan. This was well brought out in a story told me by a French mother at a course for allied workers.

Ex. 8.—After the fall of France she had trekked to Bordeaux with her daughter, aged ten. There she managed to get on board a tramp-steamer going to England. The boat was grossly crowded, and halfway across there was an alarm of an enemy submarine. There were not enough life-preservers to go around; and the captain from the bridge gave orders that the crew were to

put what life-preservers there were on the children. But all the children struck and refused to put them on. They said to the sailors: "Put them on Mummy." It was more important to them that their mothers should be safe.

As has been pointed out: "The world only crumbles when those on whom the children rely fail them";[9] and parents can fail the children by getting killed.

This anxiety that the child has for the absent parent is also seen when the father or big brother is called up for service.

Ex. 9.—Jean, aged seven, was referred for stammering. Her home had been damaged in the raids, and when the sirens went her father used to carry her down to the shelter. She was evacuated when five, but her stammer began when her mother visited her, and she was brought back after four months. Her father joined up two months later, and was sent to Australia in the following spring.

Jean lived at home with her mother, her brothers being evacuated. Her mother, too, was very dependent on her husband, and, when raids began again, cabled her husband, should she leave Bristol? and waited eight months for a reply. She wouldn't go without his consent! Jean carried a letter from her father like a talisman in her blouse pocket.

Jean was still more upset when her mother had to register for national service.

In the play-room, the themes were of a man in danger. Her play became freer at the time her big brother returned from evacuation. Further themes were of man coming home; family going abroad together; return of father on a steamer. She experimented with mother going away; her stammering improved, but relapsed when news from father was not so good.

She used to tremble on opening letters from her father. Later themes were reconstructing happy homes with Daddy in holidays before the war. The last time I saw her, Jean was radiant, and spoke practically without hesitation. Her father had cabled he was on his way home.

This child demonstrates well how important the whole family circle is, and how strong are the ties that bind individual members together.

But the same importance of family ties was demonstrated when the reverse situation occurred, and the child left the home, not the parent.

Ex. 10.—John, aged twelve, was the eldest of a family in very poor circumstances. He was very attached to his mother. He was evacuated after several raids, and tried to run away several times in the first week.

He was visited by a social worker from his home town, and he asked with tears in his eyes: "Are the raids still going on? How is Mum?"

He was persistently enuretic, and his billetors found him impossible. His other brothers and sisters were billeted separately, and one was finally adopted by the billetors. But John was moved from billet to hostel, and from hostel to hostel, becoming more difficult, and finally labelled as a bad boy because he had been found indulging in sex-play with little girls. He begged to come back, but his family refused, and he became more and more sullen.

Ex. 11.—Patrick came from a Paddington slum; his father was an Irish labourer who used to throw crockery at his wife when in a temper. Patrick was sent to one county, his brothers and sisters to another. Patrick was difficult when evacuated, and became impossible when a scrawled letter from father arrived announcing the death of his mother. He became destructive, smashed windows, and was the 'problem' boy of the county. It became evident that he believed that while he was away his father had killed his mother. Burlingham and Freud report similar phantasies.[7]

But in a special hostel, with regular psychiatric treatment, he made remarkable progress, and ultimately became a responsible member of the community, and a charming extroverted boy.

Return from evacuation also brings its own problems. Away from home, the child thinks of the family circle as perfect, and forgets the times when he was unhappy. A stranger in a strange country, he builds up rosy pictures of home which are far beyond reality. His disappointment after the first flush of the return shows itself in difficult behavior, and this bad behavior is often accentuated for the reason that, away from home, he has had to be good because he couldn't trust his foster parents to love him if he were bad. But in his home circle he can relax, because he feels he can trust his family to make allowances for him.[9]

Our own experiences at the Bristol clinic confirm this, and the same condition has been observed in repatriated prisoners of war

who have shown the same difficulties in adaptation on returning home.[2]

In short, children show great adaptability, and recover well from air raid effects; but the strain of separation from parents by evacuation is generally greater, and the effects more profound. Even in the pre-blitz period, the Cambridge evacuation survey found thirteen per cent of children needed treatment because of mental ill-health.[10]

Every investigation has demonstrated the fundamental importance of the home ties in the emotional development of the child.

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CHARACTERISTICS OF COLLEGE STUDENTS WHO DEMONSTRATE INTEREST IN COUNSELING SERVICES

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In the October, 1942, issue of THE JOURNAL OF EDUCATIONAL PSYCHOLOGY,[1] Schneidler and Berdie presented evidence to show the representativeness of University of Minnesota students who use the services of the University Testing Bureau. The question of representativeness was deemed to be important for administrative planning, for its influence upon the attitudes of students who want to know what kinds of persons patronize the Bureau, and for the bearing which it has upon future research involving the records of the Bureau. The results of the study indicated that in such particulars as aptitude for college work, records of high-school scholarship, and achievement in English, the students who had used the services of the Bureau constituted a fair cross-section of the student body. They seemed not to differ significantly, in the several respects just mentioned, from their classmates who did not use the services of the Bureau.

The kind of inquiry which Schneidler and Berdie conducted might well be made (and in some places, in one form or another, has been made) by other agencies whose function is similar to that of the Minnesota Testing Bureau. That the findings with regard to the representativeness of students who use such services will not necessarily agree with those of Schneidler and Berdie will be shown in the following discussion. The investigation, herein reported, pertains to the student personnel program at the University of Nebraska.

THE PROGRAM OF TESTING AND COUNSELING AT THE UNIVERSITY OF NEBRASKA

The testing and counseling service of the University of Nebraska is now in its fourth year of operation, having been inaugurated with the launching of the Junior Division and the Bureau of Instructional Research. Since the primary purpose of the

[1] Schneidler, Gwendolen G., and Berdie, Ralph F., "Representativeness of College Students Who Receive Counseling Services," *Journal of Educational Psychology*, 33: 545–551, October, 1942.

Junior Division was "To afford to all entering students a sound program of counseling and guidance on a distinctly individualized basis," it was considered important to provide adequately for testing and counseling in such areas as the determining of educational and vocational aptitudes and the assessing of social and emotional adjustment. Consequently, the plan of guidance which was drawn up for the University of Nebraska Junior Division called for the services of a guidance consultant to whom (or to whose laboratory) students might be encouraged to come for specialized help, either on their own initiative or at the suggestion of their advisers. This service is closely related to other student personnel agencies of the University and especially to the work of advisers and counselors of freshmen. It is also articulated with the work of the Bureau of Instructional Research through which, technically, its facilities are available to students not in the Junior Division.

On the average, approximately a thousand students per year come to the guidance consultant's office for tests. Freshmen constitute nearly two-thirds of this number. With few exceptions the appointments are made on the students' initiative; that is, they come for the appointments because they have heard about the testing and counseling service in the freshmen orientation lectures; or they have got the idea from other students; or they have had the service recommended by their faculty advisers. The appointments are never required or compulsory.

PLAN OF THE PRESENT INVESTIGATION

The present study was set up to learn what kinds of persons, in terms of ability, accomplishment, and adjustment, are represented by the University of Nebraska freshmen who patronize the guidance consultant's office. Largely for reasons of convenience, only the freshmen of the school year 1942–43 were included in the study. Furthermore, the investigation included only those freshmen who completed programs of testing related to educational and vocational planning and/or problems of a personal-social nature.

The limiting of the study in these ways resulted in the omission of a considerable number of students who made other kinds of use of the guidance consultant's office. For example, there were many men who, because of the imminence of military

induction, took tests primarily for the sake of practice. Where they arranged for only one or two such tests (and relatively limited interpretation of results) they were not included in the present summaries.

As another example of omission, there were over a hundred freshmen who held conferences with persons in the guidance consultant's office for the purpose of securing interpretations of the pre-registration classification tests (described later). Where the contacts did not go beyond this kind of service, they were not made a part of the study here reported. Suffice it to say that the kinds of problems which served as the basis of the study were those for which presumably the establishing of the guidance consultant's office was considered necessary.[2]

APTITUDE AND ABILITY RATINGS OF UNIVERSITY FRESHMEN WHO ARRANGED FOR GUIDANCE TESTS AND COUNSELING

The frequency distribution shown in Table I answers the question whether freshmen who took guidance tests were, in terms of college aptitude, the better students, the poorer students, or quite representative of the freshmen class as a whole.

TABLE I.—SCALED SCORE DISTRIBUTION FOR THE PRE-REGISTRATION CLASSIFICATION TESTS OF 1942–43 FRESHMEN WHO TOOK COMPLETE PROGRAMS OF APTITUDE TESTS

Average Scaled Score.....	1	2	3	4	5	6	7	8	9	Total
Number of Cases.	7	38	88	112	66	45	34	10	1	401
Per cent.....	1.7	9.4	22.0	27.9	16.5	11.2	8.5	2.5	.3	100

In Table I, the distribution of individuals is made according to averaged scaled scores earned in the pre-registration classification examinations.[3] The examination battery consisted of the following:

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[2] Supplementary investigations of the two categories of students who are here mentioned as not being included in the study indicate that these students bear close resemblance to the freshmen who were included in the study.

[3] Raw scores on the several pre-registration classification tests were converted into scaled scores ranging from 1 (highest) to 9 and representing, respectively, the following per cents of the distributions: 5, 8, 12, 16, 18, 16, 12, 8, 5. The number of students who averaged a particular scaled score for all of the tests is, of course, a different number than would be expected for the same scaled score in the distribution for a single test. For example,

1) *Coöperative Contemporary Affairs Test for College Students,* Form 1943, Sections 1 and 2.

2) *Coöperative English Test C2*: Reading Comprehension, Form Q.

3) *The American Council on Educational Psychological Examination.*

4) *The University of Nebraska Test of English Usage.*

5) *The University of Nebraska Mathematics Classification Test.*

6) A choice between a general science test and one in chemistry (the latter for all students enrolling in chemistry courses).

The data of Table I indicate that sixty-one per cent of the freshmen who completed relatively comprehensive programs of tests and counseling ranked above scaled score 5 on the pre-registration classification tests; in other words, they ranked among the better forty-one per cent. Only twenty-two per cent rated below scaled score 5. Clearly, the program of guidance tests has appealed more to the abler students. The students who were interested in such tests, and the related counseling, did not represent a cross-section of the freshman class as a whole.

A question which may fairly be asked concerning the students who made use of the guidance consultant's office is whether their records of achievement in college conformed to their pre-registration test scores. It might be supposed that the potentially good student who gets into difficulty with some phase of his school experience would be more likely to patronize the testing and counseling laboratory. Table II helps answer this question by offering a comparison of the grades of the freshmen who arranged for tests and counseling with the grades of freshmen who did not make use of these services.

It is evident from the data of Table II that when comparisons are made by scaled-score groups, the counseled students were at least the equal of the non-counseled students in scholastic achievement in all but three (the lowest three) scaled-score categories. Actually, they maintained slight advantages in four of the categories. (The critical ratios were 2.76 and 1.23 for groups 1 and 5, respectively; with all others below a value

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a student who averaged scaled score 1 had to get all 1's. Such students were considerably fewer than those who rated scaled score 1 on, say, English usage. A regression toward the mean operated in the tabulating of 'averaged' ratings.

TABLE II.—AVERAGE GRADES OF COUNSELED AND NON-COUNSELED FRESHMEN OF DIFFERENT SCALED SCORE RANKS ON THE PRE-REGISTRATION CLASSIFICATION EXAMINATIONS

Scaled Scores	1	2	3	4	5	6	7	8	9	Total
Counseled Group Average Grade*	88.10	82.60	81.60	76.30	74.55	71.28	68.84	61.33	50.0	76.34
Number	7	38	88	112	66	45	34	10	1	401
Non-Counseled Group Average Grade	83.42	81.65	80.02	76.36	72.19	70.29	69.08	64.60	59.0	72.78
Number	7	57	153	285	534	349	237	61	12	1695

* The lowest passing grade is 60. In the present study a value of 50 was assigned to grades of 'F,' which designate performance below passing.

of 1.) When the grade averages of the two populations as wholes are compared, the advantage of the counseled group is more pronounced; though it must be observed that this comparison is not as fair as the one above. This latter comparison does not take into account the more selected character of the counseled group. (The difference of 3.56 in the averages carries a critical ratio above 3.)

The data of Table II indicate, as shown above, that it is not the student whose achievements are below expectations (expectations based upon preregistration examinations) who is most likely to seek help through guidance tests. On the contrary, it appears from these data that not only are the upper scaled score categories much better represented, proportionately, among the counseled group, but they achieve on the whole somewhat better than the non-counseled students.

THE SCHOLASTIC APTITUDE AND ACHIEVEMENT OF FRESHMEN WHO WERE COUNSELED ON PERSONAL-SOCIAL PROBLEMS

Among the four hundred counseled students referred to above were some whose reasons for contacting the guidance consultant related almost wholly to problems of emotional or social adjust-

ment. To investigate these students separately should help determine whether any particular aptitude level contributed a proportionately greater registration of maladjusted persons in the guidance consultant's office. In other words, it should indicate how representative in other respects (aptitude and scholarship) the maladjusted students are.

TABLE III.—PRE-REGISTRATION EXAMINATION SCORES AND SCHOLASTIC GRADE AVERAGES OF FRESHMEN WHO WERE COUNSELED ON PROBLEMS OF PERSONAL-SOCIAL ADJUSTMENT

Scaled Scores	1	2	3	4	5	6	7	8	9	Total
Number	1	5	8	15	8	6	2	1	0	46
Average Grade	81.0	75.1	79.0	68.5	65.2	65.3	64.5	50		69.75

The data of Table III indicate that the freshmen who were counseled on problems which centered in personal-social difficulties were not representative of the whole freshmen class in scholastic aptitude. Like the larger counseled group, of which they were a part, the poorly-adjusted students who came for counseling represented a better-than-average sampling of freshmen abilities, as expressed by the pre-registration test scores. Twenty-nine of the forty-six individuals rated scaled score averages above 5, as compared with nine who rated below 5.

In contrast with their rating of aptitude, however, the forty-six badly-adjusted students made relatively poor scholastic records. At practically all scaled score intervals they fell below the grade averages shown in Table II for all freshmen. Evidently scholastic difficulties resulted from, or at least accompanied, the problems which the forty-six freshmen brought to the guidance consultant's office.

CONCLUSIONS

The main point of the foregoing discussion is that non-representativeness rather than its opposite may sometimes characterize college students who seek help from a testing and counseling service. At any rate, this has been the situation at the University of Nebraska where such services have attracted disproportionately larger numbers of freshmen from the higher brackets of ability. Not only is this evident in the case of students who are concerned with the clarification of educational

and vocational objectives, but it is also true of those whose problems are primarily personal-social in nature.

It was not one of the purposes of the present investigation to determine systematically the reasons for the unequal appeal which the counseling service has for students of different levels of ability; although this would seem to be desirable as a further inquiry. It would be desirable as an additional step in the direction of knowing better the nature of these services in a particular institution. It is important, as Schneidler and Berdie have pointed out, to have such knowledge as a basis for continuous planning of the counseling program. Clearly, the way in which such a service is accepted by students in one university cannot safely be assumed to characterize another student population.

COMPARABILITY OF CHILD AND ADULT PERSONALITY RATING SCALES

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Educators have long recognized the importance of pupil-teacher relationships; they have realized the significance of the interaction of the personalities of both teachers and pupils. Yet experimental investigations in this all-important area are slow in forthcoming. A complete study in this field would include divers interrelationships, involve numerous problems.

As a starting point it is essential to have measuring instruments that are comparable at both the child and adult levels.

After careful study of the many personality scales available, the writer concluded that the Kelly 36-Trait Personality Rating Scale[2] was more inclusive in its list of traits than any other. From this was evolved a child's form, the Tschechtelin 22-Trait Personality Rating Scale.[3] Evaluation of the comparability of the two scales was carried on as follows:

1) Six classes of children in Grades VI, VII, and VIII were given a preliminary vocabulary study on the more difficult words in the adult scale.

2) The sizes of the classes ranged from eighteen to thirty-seven children. The total number of children on whom ratings were secured was one hundred sixty-six.

3) The scales were so administered that half of the children should respond first to Form A* and then to Form C†, and half should use Form C first, then Form A.

4) The ratings of pupils were as follows:

   a) Each pupil was rated by six fellow pupils, three girls and three boys, on each item on both forms.
   b) Each pupil rated himself on each item on both forms.
   c) Each pupil was rated on each item on both forms by four teachers.

Thus a total of twenty-two ratings, eleven on Form A and eleven on Form C, was secured for each of the one hundred sixty-six children on each item. This constituted a total of

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* A = Adult Scale.

† C = Child Scale.

3,652 individual ratings for each item and a grand total of 80,344 individual ratings for both scales.

5) All scales were administered by the writer.

TREATMENT OF THE DATA

Throughout the study each item, or each trait, is considered as a separate scale; hence, in no case are any items combined or total ratings summed. Correlations were computed to ascertain the comparability of the two forms. Pearsonian *r*'s were used

TABLE I.—CORRELATIONS OF FORM A VERSUS FORM C ($N = 166$)

Item	Children's average ratings BG_{b_g}*		Self-ratings S_{b_g}		Teacher's average ratings BG_t	
	r	*SE*	*r*	*SE*	*r*	*SE*
1. Pep	.68	.04	.82	.03	.89	.02
2. Intelligence	.54	.06	.78	.03	.87	.02
3. Sociability	.81	.03	.68	.04	.77	.03
4. (Nervous)—Calmness	.80	.03	.66	.04	.70	.04
5. Popularity	.62	.05	.66	.04	.76	.03
6. Religiousness	.82	.03	.64	.05	.81	.03
7. Punctuality	.74	.04	.65	.05	.89	.02
8. Courtesy	.76	.03	.53	.06	.76	.03
9. Coöperation	.77	.03	.56	.05	.82	.02
10. Generousity	.83	.02	.47	.06	.88	.02
11. Persistence	.60	.05	.47	.06	.89	.01
12. Honesty	.61	.05	.66	.04	.92	.01
13. Neatness	.85	.02	.65	.05	.89	.01
14. Patience	.84	.02	.90	.02	.69	.04
15. Interests	.82	.03	.59	.05	.90	.01
16. Disposition	.87	.02	.72	.04	.88	.02
17. Good Sport	.69	.04	.78	.03	.84	.02
18. (Boisterous)—Quietness	.53	.06	.58	.05	.68	.04
19. Entertaining	.65	.05	.59	.05	.80	.03
20. Thoughtfulness	.81	.03	.50	.06	.90	.01
21. Sense of Humor	.79	.03	.58	.05	.77	.03
22. Dependability	.54	.06	.51	.06	.86	.02

* Capital letters signify rates; small case letters signify raters.

for this purpose, and three separate series of tabulations were made for each item. The sixty-six coefficients of correlation are given in Table I as follows:

1) The ratings of the six children were averaged for each child on each item on each form. These averages were then plotted for the twenty-two *r*'s in the first column of Table 1. These *r*'s range from .53 to .86 with a median *r* of .76.

2) The self-ratings on Form A were plotted against those on Form C. The resultant *r*'s are given in the second column of Table I. These range from .47 to .89 with a median *r* of .64.

3) To obtain still another measure of the comparability of the two forms, the ratings by the four teachers were averaged for each child on each item on each form. These averages constituted the basis of a third set of correlations. They are listed in the third column of Table I. The *r*'s range from .68 to .92 with a median *r* of .85.

An inspection of this table reveals several interesting points:

1) The *r*'s based on self-ratings are, in the case of most items, lower than those based on the averages of the ratings of six fellow-pupils. The only exceptions to this in excess of .04 are Items 1, 2, and 17.

The fact that most of the *r*'s based on self-ratings are lower may be expected, because these *r*'s are in reality based upon one rating against one rating; namely, self-rating on Form A versus self-rating on Form C.[1]

2) In every case except those of Items 4 and 14 the *r*'s based upon the averages of the four teachers' ratings are higher than or equal to those based upon the averages of six pupils' ratings.

Does this indicate that the wording on the two forms was synonymous to the teachers to a slightly greater extent than it was to the children? Or is it possible that some children among the group did not understand the adult vocabulary as well as did the teachers? Or that children are less accurate in their verbal judgments than teachers? Furthermore, if the averages of four judges (in the case of teachers) were stepped up to six (as in the

[1] If this were stepped up by the Spearman-Brown formula to six against six, these would be higher even than the average ratings of six fellow-pupils. Yet, this is no basis for argument against the S-B formula, for in self-rating stepped up we would have the anomaly of six selves, whereas in the other case six different persons are expressing their opinions of a classmate.

case of the pupils) the r's for teachers' averages on the two forms would be still higher.

TABLE 2.—MEANS OF FORMS A AND C; DIFFERENCES IN THESE MEANS; t VALUES FOR THESE DIFFERENCES (N = 166)

Item	Means$_A$	Means$_C$	Diff$_{M_A-M_C}$	"t" values*	Favor
1. Pep	5.61	5.52	0.09	0.43	A
2. Intelligence	5.15	5.30	0.15	0.58	C
3. Sociability	5.81	5.94	0.13	0.62	C
4. (Nervous)—Calmness	5.51	5.43	0.07	0.28	A
5. Popularity	5.56	5.62	0.06	0.25	C
6. Religiousness	5.85	5.83	0.02	0.08	A
7. Punctuality	6.31	5.73	0.42	1.50	C
8. Courtesy	6.82	6.32	0.50	1.92	A
9. Coöperation	5.81	5.90	0.09	0.39	C
10. Generousity	5.43	5.47	0.04	0.16	C
11. Persistence	5.73	5.95	0.22	0.96	C
12. Honesty	6.04	6.26	0.22	0.85	C
13. Neatness	6.16	6.34	0.18	0.67	C
14. Patience	5.82	5.72	0.10	0.38	A
15. Interests	5.80	5.75	0.05	0.24	A
16. Disposition	6.18	6.18	0.00	0.00	—
17. Good Sport	5.95	5.91	0.04	0.17	A
18. (Boisterous)—Quietness	6.05	5.79	0.26	0.87	A
19. Entertaining	5.66	5.72	0.06	0.26	C
20. Thoughtfulness	5.95	6.22	0.27	1.12	C
21. Sense of Humor	5.82	6.13	0.31	1.93	C
22. Dependability	5.85	5.75	0.10	0.42	A

* 2.58 is significant at one-per-cent level; 1.96 is significant at five-per-cent level.

As another measure of the comparability of the two forms, t values for the differences in means were computed. An inspection of Table 2 reveals that the means for the various traits range from 5.3 to 6.3 on Form C and from 5.2 to 6.8 on Form A. The differences in these means range from 0.0 to 0.5, with a median difference of 0.1. The t values computed for each trait range from 0.00 to 1.93 with a median t of 0.42. Since none of these t's are significant at the five-per-cent level, one might conclude that on this basis the two forms are fairly comparable.

Hence, since the correlation between the two forms is as high as, and in some instances higher than, the reliability of each form in itself,* and the means do not differ significantly, the two forms of the scale were considered adequately comparable for use in systematic scientific investigations of pupil and teacher personalities.

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* Though this be theoretically impossible, it will be seen that in computing the coefficients of reliability on each form, the ratings of one judge against another—i.e., the ratings of two different individuals—were used. For the correlations between the two forms, the ratings used were those of the same individuals on both forms. This would account for the higher *r*'s.

THE ABBREVIATED STANFORD-BINET SCALE IN A SUPERIOR POPULATION

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Several modifications or abbreviations of the Stanford-Binet scale have been studied in earlier articles. The present author investigated the usual short scale[5] and serial testing[6] in the test range II to XIV in a private-school population. Kvaraceus[4] compared the short and long scale, as did Wright.[8] The latter study, however, is unique in that it suggested a modification of the usual procedure in administering the short form. Wright points out that in the common short form there are many instances of unwitting, faulty abbreviation of the range of successes. In a relatively large number of cases successes above the apparent terminal age, and failures below the apparent basal age, would be found in the comparison of a full and short test of the same individuals. She suggests the use of full testing at the apparent basal and terminal ages, as found during short-scale testing If this full testing confirms the impression of basal and terminal ages given by the short scale, testing would cease. If any of the additional tests are failed at the basal or passed at the terminal age, abbreviated testing would continue until new, apparent basal and terminal ages are established. These new levels would then also be either confirmed or denied by full testing at their respective levels.

In two populations, one mentally defective and borderline and the other moron and borderline, Wright found this modified short scale much superior to the usual abbreviated procedure. The modified short scale was in error by more than five points in only one case in sixty-eight, while the regular short scale erred by the same amount in one in nine cases, when compared with full scale test results. The extent of error was one in six in the regular short scale and one in thirty-four in the modified form in cases where the difference from the long scale was five points or less. Mean differences between the long and modified short scale were approximately two points of IQ (1.8 and 1.9), while those between the regular abbreviated and complete scales approximated one point (1.1 and 1.3).

The apparent superiority of the modified abbreviated scale as compared to the regular short form in these mentally defective populations prompted investigation of the values of this method in a private-school superior group. If Wright's results obtain in both defective and superior groups, adoption of her method of short-scale testing would be clinically advantageous in those instances in which abbreviated testing is desirable.

We administered complete scales to one hundred pupils of a nursery school and two private schools of New York City. The superior intelligence of this group is apparent from the data given below. The only conscious element of selection was the elimination of cases with complete scale IQ's below 90, in order that the present population would be as superior, and as distinct from Wright's group as possible.

The results of the administration of the long, regular short, and Wright's short form, with respect to mental age, are given in Table I.

TABLE I.—MENTAL AGE RESULTS FROM THE COMPLETE, SHORT AND WRIGHT'S ABBREVIATED SHORT FORM STANFORD-BINET

	Long Scale	Short Scale	Wright's Scale
	7.21	7.10	7.26
Mean MA	Long-Short	Long-Wright	Short-Wright
Difference	.11	.05	.16
Sigma of diff.	.042	.042	.094
Diff./Sigma of diff.	2.61	1.19	1.70
Range of differences	−22 to +8 mos.	−16 to +10 mos.	−2 to +23 mos.
Median difference	2.75 mos.	2.59 mos.	.0 mos.
Diff. > six mos.	14 per cent	6 per cent	10 per cent

The mean mental ages from both the regular and Wright's short form are insignificantly different from those of the complete scale. In fact, Wright's mental ages are higher but more closely similar to the long scale. In this, Wright's short method differs from most reports of short-form testing[5,6,7,4,8] which usually result in underestimation of the long-scale results. The range of differences is quite large, however, the regular short form giving results from twenty-two months below to eight months above the complete scale; Wright's method giving differences from sixteen months below to ten above. The regular short scale was in error by more than six months in fourteen per cent of the cases; the Wright method, in six per cent. The average

difference between the long and short scale was 2.75 months; that between the long and Wright's method, 2.59 months. These differences further emphasize the difficulty in estimating long-scale results from either of the short forms. There may be serious misestimation of the intelligence in individual cases, in using either of the short forms, although Wright's method is apparently superior to the regular short scale.

The indications of the data on IQ's from the various types of testing are similar. Wright's method is more closely similar, but higher than the long scale in mean IQ. The range of differences in the IQ's from the different testings is quite large, in all comparisons, the short scale ranging from twenty-five points below the long scale to fourteen above; Wright's, from sixteen below to seventeen above. The average difference between the long and short scale was 4.37 points; that between the long and

TABLE II.—IQ RESULTS FROM THE COMPLETE, SHORT AND WRIGHT'S ABBREVIATED SHORT FORM STANFORD-BINET

	Long Scale	Short Scale	Wright's Scale
Mean IQ	123.35	121.75	124.05
	Long-Short	Long-Wright	Short-Wright
Difference	1.6	.7	2.30
Sigma of diff.	.24	.26	.55
Diff./Sigma of diff.	6.6	2.69	4.18
Range of differences	−25 to +14	−16 to +17	−4 to +26
Median difference	4.37	3.72	.0
Diff. 5 points	33 per cent	26 per cent	12 per cent

Wright's method, 3.72 points. The short scale was in error in predicting the long scale IQ by more than five points in thirty-three per cent of the cases, while Wright's method erred in twenty-six per cent. Again, the size, range and frequency of these differences emphasize the precarious nature of predictions of long-scale results in individual cases from the administration of a short form.

One further element that should be considered in the comparison of the long scale with these variations of the short form is that of inversions. It is quite possible for an individual, particularly in this edition of the Stanford-Binet, to achieve scores above the apparent terminal age. Hildreth[2], Carlton[1], Krugman[3] and the present writer[5,6] have already remarked upon the

frequency of this phenomenon. In the present population, six per cent of inversion was found in the long scale, nineteen per cent in the short, and six per cent in Wright's method. In this respect, Wright's short form is definitely superior to the regular short scale. This prevention of inversion is responsible, to some extent, for the lesser tendency to underestimate long scale results in the Wright method, a desirable tendency.

It is also apparent from inspection of the present data that the Wright's method of abbreviation is more conducive to error in this superior population, than in her subnormal groups. The range of errors in estimating long-scale results, the size of the average error, the frequency of errors greater than five points are, respectively, greater than the same measures found in Wright's groups. We cannot but conclude that, if our group can be considered representative of a superior portion of our population, Wright's method of abbreviated testing is less accurate among gifted children than among subnormals. However, her method is definitely superior in both subnormal and gifted populations to the 'starred' or abbreviated scale recommended by the authors of the Stanford-Binet scale.

We offer these conclusions which, of course, because of the size of the population involved cannot be considered more than suggestive:

1) Wright's proposed method of abbreviating long-scale testing is definitely superior to the usual short form in range, size, and frequency of errors in predicting long-scale results. It is also superior in that it produces fewer inversions.

2) Wright's method appears to be more accurate in subnormal than in gifted groups in the prediction of long-scale results.

3) The range, size, and frequency of errors when using the Wright method of abbreviation are so great as to preclude its use when a full scale can possibly be administered. When time does not permit the latter, Wright's method is superior to the usual 'starred' short form.

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